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**THE E-GOVERNMENT REVOLUTION IN TAX AGENCIES:  
A CASE STUDY OF CRITICAL IMPLEMENTATION ISSUES**

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**ABSTRACT**

Tax agencies in the U.S. are under pressure to maximize their operations with their constrained budgets. While taxpayers welcome the benefits of electronic government (e-government) services, the true motivation may lie in improving the efficiency of providing government services. Tax agencies transitioning from traditional brick-and-mortar operations to e-government services and systems need to reengineer their business processes, redefine individual roles within the agency and relationship with taxpayers, and redesign organization structures around the new electronic technologies implemented. This paper presents and discusses six critical issues involved with this transition based on a case study of a state tax agency. They include managing expectations, articulating strategy, reengineering business processes and organization structure, managing the technology infrastructure and resources, training, and recruiting.

**INTRODUCTION**

Like businesses and other government agencies, tax collection agencies throughout the U.S. have begun migrating their brick and mortar operations to electronic government (e-government). While e-commerce transforms the way the private sector operates, government agencies at all levels are under pressure to take advantage of the new technologies to better service and interact with citizens, businesses and other government agencies. Because of their frequent and universal interaction with citizens and businesses, tax agencies need to exploit e-commerce tools. For example, filing individual income tax returns, extensions and claims, or paying taxes via the Internet opens new opportunities for these tools.

Although the convenience of e-government will quickly win the favor of most people, the real motivation may lie in legislative pressure to reduce the cost of government operations. For many state government agencies, greater budgetary constraints, a steadily increasing population and freezes on government hires place added burdens on their ability to serve the public. In essence, fewer resources are available to perform more work. This especially poses a dilemma for tax collection agencies, an income generating branch of the government. Individual tax revenues

represent a major portion of income for state governments. Difficulties in processing individual tax returns in a timely manner often lead to problems in catching returns that owe money to the state. This in turn costs the state millions of dollars in lost revenue, and thereby reduces the funds available for other state agencies and public programs. Hence, tax collection represents an important function of the state government.

A possible solution is e-government, adopting an information technology (IT)-based business model to electronically manage tax returns and share information with other agencies. Electronic filing (ELF) services alone can greatly reduce error-correction time, staff time to open mail and enter the return data into the tax processing system, and all paper handling cost related to the paper return. ELF can save a state tax agency at least \$1 per return [1]. With their automated system, the state of Texas realized an 80 percent cost saving per tax return with their phone filing system (33 cents versus \$1.66) [2]. When designed to help taxpayers calculate their taxes, web-enabled filing systems have been able to reduce filing errors by as much as 20 percent [3].

The e-government service model shifts from the traditional relationship of a taxpayer interacting with a government worker who may turn to an IT system in the background, invisible to the taxpayer. Instead, the taxpayer interacts directly with the IT of the agency though Internet, and the worker is freed from the routine, repetitive tasks to serve as a problem solver for the more complex issues.

However, moving from a bricks and mortar business model to an e-government model poses many challenges and requires the tax agency to closely examine its processes and organization structure, and reengineer itself to make the IT-based business model work. In making this move, there are major management issues that need to be addressed to ensure the successful transition and conversion. The purpose of this paper is to present and discuss critical issues surrounding this transition based on a case study of a state tax agency.

**REVIEW**

While e-government can refer to government services by any electronic system or application, it is commonly

defined as “online government services, that is, any interaction one might have with any government body or agencies, using the Internet or World Wide Web” [3]. Rather than gathering information or transacting business at a physical location or interactively over the phone, people can conduct these tasks over the Internet. A major advantage is accessibility. In contrast to a physical means, e-government can serve people 24 hours a day, 7 days a week (i.e., 24x7) from nearly anywhere in the state (or world).

The U.S government is among the leaders to take government services online. Government agencies at each level (federal, state and city/county) are trying to catch up with the e-government demand. E-government services in general have transitioned from the initial simple agency information posting (presence) to basic search and limited interactivity (interaction) to process-based self-service applications (transaction) in an effort to achieve one-stop government online services (transformation).

At the state level, for example, the governor of Hawaii, Ben Cayetano, has ordered that all government services should be on the Internet by June, 2002 [4]. A similar initiative proposed by the Secretary Of State of California specifies that the Governor should require agencies to provide 90 percent of their services over the Internet by 2002 [5]. Many states including California, Hawaii, Michigan envision a single portal on the Internet to offer one-stop services for the residents of the state. The most recent development in California allows citizens to personalize their e-government service application to ‘MyGov’ as in the case of ‘MyYahoo’. Citizens can select preferred on-line state services and category links as well as news that are most relevant to them based on their needs. In the future, E-government services will be a list of services needed at various times in a citizen’s life and within a few clicks away from *one stop* online.

A recent survey [6] conducted among federal (government) chief information officers (CIOs) identified five critical enablers of e-government, including leadership and management (increased CIO authority and leadership to transition to e-government), IT infrastructure, information assurance and security (dedicated resources and dependable security), IT work force (acquiring skills required for the transition), and strategic sourcing and acquisition (granting CIOs greater authority over resource acquisition). These form the basis on which a solid foundation can be built. With a predicted 22 percent growth rate beyond 2000 [8], many state and local governments have already implemented state-wide IT architectures and directed resources toward supporting applications, such as licensing, tax filing, e-procurement and e-purchasing, employee services, fine payments, and permitting systems.

The MIT90 framework [7] provides a means for identifying organizational components that will be affected by the e-government transition (Figure 1). According to the MIT90 model, five components, strategy, structure, business processes, individuals and roles, and technology, interact with one another to achieve change. The adoption of an e-government business model marks a change in

strategies and points the way toward the development of the other four components.

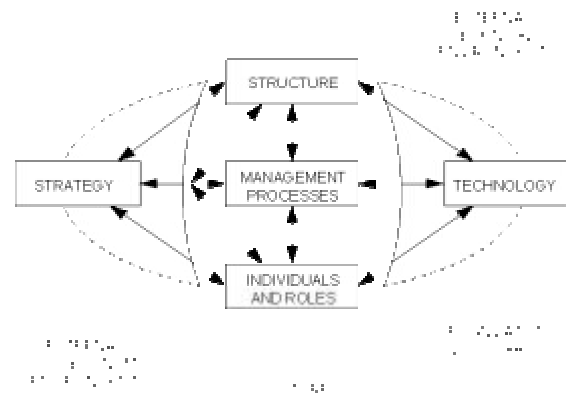


Figure 1. MIT90 framework

**Strategy:** Tax agencies that initiate e-government services need to lay out their strategies clearly and thoroughly. E-government services are more than just applications of new Internet technologies; they represent the new order, a business model enabled by IT. They depend not only on new technologies, but also on new organization strategies.

**Technology:** IT is the backbone required to support e-government services. Just as “death and taxes” are constants, so are changes to technology. With e-government, there will be many technology issues that need to be addressed, such as IT infrastructure, portal maintenance, and technical resource management. Building a solid IT infrastructure ensures the availability of technology throughout the organization and enables it to exchange information and data with other agencies and external entities.

**Business Processes:** Business processes represent the coordinated work activities including their resources that result in a service or product of value to the customer [8]. For a tax agency, the paperless intake of tax returns from the Internet triggers a chain of changes in the tax return process, such as customer services, revenue account, tax collections, audit, and administration. Within each step of tax information processes, the electronic technology helps a tax agency improve its services to taxpayers and its internal efficiency, while in return the agency itself is required to spin its operations around the new technology so as to maximize the benefits of e-government services. In transitioning to an e-commerce business model, El Sawy [11] cites three ways for redesigning a business process: restructuring and reconfiguring the process, changing the information flows around the process, and changing knowledge management around the process.

**Structure:** The changes in tax processing brought about by e-tools require organization redesign. The new structure not only includes communication (i.e., flow of information) and the realignment of resource and expertise, but also structural changes between agencies. In an electronic environment, this is especially important since IT must be able to facilitate the communication of information within the organization, and between the organization and its

external entities. Improved information flows enable lower level managers to hold greater authority over key decisions, thereby improving their task performance.

**Individuals and Roles:** Public employees who are trained and willing to adapt to e-government provide good taxpayer services. This involves providing both technical and end-user training, negotiating agreements with public worker unions, and shaping the employees' aptitudes to adapt and learn. Preparing employees for change reduces their resistance to the change. This represents an important initial step. Lewin [9] suggests driving forces must overcome restraining forces before change can go forward. In preparing employees, they must be convinced that they will benefit or succeed from the change (i.e., outcome beliefs) and the energy they exert to modify their behavior will be minimal. Once they accept the technology (change), they will commit themselves to its (technology's) use [10] [11]. Thus, employees who *believe* in e-government and have internalized the agency's goals and objectives will most likely promote it and contribute to its successful implementation.

Although initially attractive, transitioning to e-government model poses many other challenges. The differences between a *bricks and mortar* operation and an electronic environment, such as e-government, require organizational changes rather than (ad hoc) localized changes. Because e-government is an IT-enabled business model, the first challenge lies in implementing major changes to the organization's strategy, technology, business processes, structure, and people component (individuals and roles). Changes must be carefully planned and orchestrated. The second challenge occurs in the alignment of these components to ensure the organization benefits from the changes. All components must work together toward a common set of goals and objectives to improve the overall quality of the final product or service. In making this transition, critical management issues will arise and need to be addressed.

### CRITICAL MANAGEMENT ISSUES

When implementing an e-government system, a tax agency faces a myriad of problems. This paper presents and discusses six major critical issues that arose from an e-government system project in a state tax agency.

The mission of the state agency is to administer tax laws for the state in a consistent, uniform, and fair manner. Its vision is its commitment to satisfying customers proactively, investing in its employees' future, and using *technology to empower* all. Its day-to-day operation involves processing state tax returns, collecting delinquent taxes, conducting audit and criminal investigation, educating taxpayers, interpreting tax code, and etc.

The tax agency contracts with more than one medium to larger technology consulting firms (at the same time or consecutively) to develop and implement its e-government project. The project, among other online services, mainly involves providing tax filing services online.

### Managing Expectations

As part of the strategy planning process, managing expectations involves identifying the stakeholders in the e-government service and finding a common ground in their expectations. While private sectors put more emphasis on economic return, government agencies have to consider both political gains and economic benefits. Executives of state agencies include those of tax agencies that often report to political appointees who in turn are overseen by the governor. Politicians see e-government as a way to seize votes, satisfy their constituents, and ensure future contributions. Citizens want the ease to use the e-government and the convenience of 24x7 service and support. Businesses also want the same level of services found in the private sector. Citizens and business are not only users of e-government services, but also donors (by paying taxes and fees) for funding these services. In return, they are in a position to influence the strategy making either as part of the agency's constituency, or through industry and profession association, or through lobbying means. The agency itself aims at generating more revenues and reducing costs, but has to deal with meeting other parties' expectation with rigid funding schemes and limit labor resources. Each party benefits from e-government services, but holds different expectations. Therefore, a successful E-government implementation requires studying expectations up front.

Juggling between the expectations of each party places the project in a peculiar situation, *think big and start small*. By *thinking big*, the project takes customer (citizen and business) expectations in consideration and plans for different phases of e-government services. In this way, customer expectations will be met eventually, but probably not initially. In the same sense, the project delivers the most widely filed but relatively simple return forms, such as the tax clearance application form, the estimated tax forms, extension forms, etc. By *starting small*, the agency is able to deliver a manageable initial offering of 12 forms online in less than a year. As the e-filing process gains wider acceptance and greater momentum, the agency gains confidence in its employees, the legislature and taxpayers, and optimizes its resources for meeting basic customer expectations.

### Articulating Strategy

Careful agency planning is essential to ensure the e-government implementation succeeds. During the planning, the project team reevaluates how the agency conducts its business, considers automating groups of processes that serve a common customer together, and coordinates with other agencies to achieve customer-focused approaches. The project team also tries to build the e-filing system on the existing efforts, prioritizes agency implementation based on achievability and net benefits, and coordinates the plan and schedule with the agency's strategic IT planning activities with consistency to the budget process.

The goal of the agency is to achieve 30 percent participation on e-filing. The objective of the strategy is to transform the current agency-centric, paper-based business model to a future enterprise, customer-centric electronic business model. Taxpayers demand more information, more interactivity online, higher quality information and a greater freedom to make and shape transactions that fit their needs and interests. The Internet must serve as more than just electronic billboard; it must serve as the interactive interface between taxpayers and the agency. The interaction includes not only distributing tax forms, providing information and answering taxpayer's questions on specific issues, but also offering a customized transaction application at the taxpayer's request.

Government agencies must take a holistic approach to e-government strategy, clearly identifying the objectives while addressing significant external (i.e., political, legislative constraints) and internal (i.e., lack of technical infrastructure and technical resources) enablers and impediments.

### **Reengineering Business Processes And Organization Structure**

E-government service implementation is an organizational change that encompasses the system/application implementation. Organization design (OD) and change management (CM) go together with the e-government system implementation. Before the project team begins designing the system, a separate team launches a study on the organization structure and business processes, and delivers a blueprint of OD/CM. This document clearly defines the details of the current organization structure and business processes. More importantly, recommendations are given on the new strategy/structure/business processes in compliance with the system implementation each phase. The project team also maintains an ongoing effort to redefine tasks/business processes, including reconciling differences between what the Internet technology/system can offer and what the agency can support/what the legislature stipulates.

The redesign of organization structure and business processes resulted in economic gains. The agency receives savings in not only dollars but also man-hours and related tasks, such as those involving the mailroom, data prep, data entry, and file maintenance and exception handling issues. Furthermore, by incorporating form edits and manual edits into business rules for the (tax return) form, many common filing errors can be prevented and further savings achieved. The agency is also able to discharge some of its administrative obligations by making tax services, such as distributing forms, tax return data entry, tax advice and new legislature update and taxpayer education, available online.

### **Managing Technology Infrastructure And Resources**

The third critical issue concerns developing a new focus for organization. Given the diversity of players involved in delivering public services, developing an effective IT system requires new partnerships across programs,

agencies, levels of government, and between the public and private sectors.

Most agencies do not see the value in designing a service-based portal, instead opting to web-enable one process at a time. However, e-government at the state level is dominated by the rise of the 'portal.' A portal is defined as "an umbrella web site or a starting point that provides users with links to the information they want" [12]. Two types of portals have emerged. One is a state provided portal, and the other a vendor-provided portal. State-provided portals are developed internally, and usually maintained internally as well. Vendor-provided portals usually require special legislation for the state or vendor to charge an access fee to public information. These charges often take the form of 'convenience' fees that come in addition to the cost of the basic transaction, but spare citizens the hassle of waiting in line. Transaction fees from vendor-provided portals are split between the state and the vendor with the state taking the larger share, usually 80 percent [13].

In the case of the tax agency under study, the decision has been made to carry out the e-filing system on the state portal website. Since the portal is privately operated, a transaction fee of \$2.50 is charged for returns with bills paid online. The tax agency does not pay for any of the services of the portal vendor, although the agency is responsible for assisting them with the development of the web applications to ensure it functions as required by the agency.

The forms implemented on the web include form edits to prevent exception handling on the backend for the department. Many of the manual and system edits have been addressed to avoid the more common errors that prevent the department from processing a return.

Additional user information can be used to create a user profile so screens can be customized screens to efficiently lead him/her through the navigation of his/her web application.

### **Training**

A separate team works on training as soon as the project begins. Training runs parallel with system design/coding. When the new e-government system is ready, so are the employees and the department as a whole.

Training also involves taxpayer education. E-government services are only good if taxpayers use them. The training targets different levels. The department gives preliminary training to software companies who design the state tax filing software and professional groups, such as CPA firms that help clients file taxes. They can then train their users or client. The department also employs the local media to circulate the news about the newly added online tax services.

Different media are employed to help employees/taxpayers understand and use the new e-government services,

including videos, computer-based training (CBT), classroom slide presentations, pamphlets and even news conferences.

### Recruiting

Lastly, the agency must coordinate its recruitment of qualified employees with the civil service department to meet new resources needs (usually technical staff) for new roles created by e-government systems/services. This has to be planned early due to anticipated bureaucratic obstacles (i.e., government red tape).

Another problem that frequently besieges government agencies is the loss of technical talent to the private sector. The tax agency in this study faces significant inadequacy in technical resources and technical knowledge due to inadequate planning (i.e., not anticipating needs soon enough) and migration of key employees to the private sector. While it may take a private business a few days to hire, it usually takes an agency at least a month. To attract more talent, the state offers shortage differential salaries (money that supplements the current salary schedule) to technical staff due to the shortage of technical resources.

### SUMMARY AND CONCLUSION

The management issues cited in this paper may apply to other state or federal agencies, and foreign governments. Although different countries exercise different political/economic systems and laws, in general, all governments practice similar bureaucratic functions, and therefore, will encounter similar problems when implementing e-government services.

Transitioning from a *bricks and mortar* business model to an e-government model requires careful planning since moving to an electronic environment marks the move in a new direction as reflected in the agency's strategy. As a result, the agency will experience organizational changes to its IT infrastructure and resources, business processes, structure, and individuals and roles. The six critical management issues presented and discussed in this paper lend further support to the MIT90 framework. Although the framework was developed for general IT practices, it can be readily applied to a specialized application, such as e-government. Thus, as indicated in this case study, the move to an electronic-based (i.e., e-government, e-business) business model will affect all areas of an organization, not just to an isolated area.

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